IT - 601
B.E. VI Semester
Examination, December 2014
Distributed Systems
Time : Three Hours
Maximum Marks : 70

Note: i) Attempt all questions.
ii) All questions carry equal marks.

1. a) What are distributed systems? Name two advantages and two disadvantages of distributed system over centralized ones. Explain in your own words the concept of parallelism transparency. 7

b) Why is computer clock synchronization necessary? Describe the design requirements for a system to synchronize the clocks in a distributed system? 7

OR

2. a) Discuss briefly key challenges that one need to address in the design and development of distributed applications. 7

b) Give a brief note on token based and non token based algorithms in distributed system. 7

3. a) What are agreement protocol? What are agreement and validity objectives of Byzantine agreement problems? 7

b) What are phantom deadlocks? Explain the algorithm which could detect phantom deadlocks? 7

OR

4. a) Construct a solution to reliable, totally ordered multicast in a synchronous system, using a reliable multicast and a solution to the consensus problem. 7

b) Explain deadlock avoidance with an example. 7

5. a) Identify main types of security threats that might occur in the interne with an example. 7

b) Write a simple RMI program that demonstrates the in vocation of remote object services. For ex- when a client sends a message. "Ping", the server responds with "Pong". 7

OR

6. a) Discuss model architecture of distributed file system and its components. 7

b) Discuss techniques for achieving high-performance in distributed file systems?

7. a) How concurrency control can be achieved in distributed transactions? 7

b) What are Fault-tolerant services? Explain briefly. 7

OR

8. Write short note: 14

i) Atomic Commit Protocols ii) Distributed deadlocks.

9. a) What is Election Algorithm? Suppose that two processes detect the demise of the coordinator simultaneously and both decide to hold an election using the bully algorithm. What happens? 7

b) Explain briefly: 7

i) APP Problem ii) Deadlock free packet switching

OR

10. a) Write a simple CORBA program that demonstrates the invocation of remote object services. For example when a client sends a message "Hello", the server responds with "Hi There". 7

b) Explain wave and traversal algorithms. 7